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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/610,748	07/06/2000	Young-Hwa Kim Ph. D.	2539738-78377	5015

7590 07/28/2003

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EXAMINER

PIERCE, JEREMY R

ART UNIT	PAPER NUMBER
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1771

DATE MAILED: 07/28/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/610,748

Applicant(s)

KIM PH. D. ET AL.

Examiner

Jeremy R. Pierce

Art Unit

1771

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 05 June 2003.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 84-112 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☒ Claim(s) 93-99 is/are allowed.
- 6) ☒ Claim(s) 84-92, 100-103 and 106-112 is/are rejected.
- 7) ☒ Claim(s) 104 and 105 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on _____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____
- 4) ☐ Interview Summary (PTO-413) Paper No(s). _____
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____

DETAILED ACTION

Continued Examination Under 37 CFR 1.114

1. A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on May 8, 2003 has been entered.

Response to Amendment

2. Applicant's amendment filed on May 8, 2003 has been entered. Claims 84 and 86 have been amended. New claims 100-112 have been added.

Information Disclosure Statement

3. Document AE on the Information Disclosure Statement reads 6,227,574 to Mohr. However, the number should be 3,227,574 to Mohr.

Claim Rejections - 35 USC § 102

4. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

Art Unit: 1771

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

5. Claims 100 and 106 are rejected under 35 U.S.C. 102(b) as being anticipated by Patchett (WO 93/21492).

Patchett discloses a sheet material suitable for use in body armor comprising a flexible layer and a layer of discrete plates (page 2, lines 1-6). A multi-layer arrangement can be made having three flexible layers and three layers of rigid plates (Figures 8A and 8B). With regard to claim 106, Patchett show two layers of plates joined to opposing sides of a flexible substrate (Figure 7B). Patchett also discloses the flexible layer may be a laminate comprising different materials (page 7, lines 9-11). So there would be two flexible substrates present.

6. Claim 100 is rejected under 35 U.S.C. 102(b) as being anticipated by Schaumann (U.S. Patent No. 1,758,296).

Schaumann discloses three flexible layers with a plurality of non-overlapping plates attached to their surfaces (Figure 2).

7. Claims 106-111 are rejected under 35 U.S.C. 102(b) as being anticipated by Harpell (U.S. Patent No. 5,196,252).

Harpell discloses a multi-layered fiber-containing article having a plurality of non-metallic plates affixed to a surface of the article (column 3, lines 7-11). The article comprises two flexible substrate layers arranged in a stack with plates arranged on opposing sides (Figures 3). With regard to claim 107, a third flexible substrate can be found between the two outer substrate layers (Figure 3). With regard to claim 108, the fibrous layers can be woven fabrics (column 6, lines 36-41). With regard to claim 109,

the plates are made from polymeric material (column 15, lines 4-28). With regard to claim 110, the woven fabrics may be nylon (column 7, lines 36-46). With regard to claim 111, the plates may be hexagonal in shape (column 14, lines 47) and would inherently be larger than 80 mils in diameter as a ballistic resistant material.

Claim Rejections - 35 USC § 103

8. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

9. Claims 84-86, 90, and 91 are rejected under 35 U.S.C. 103(a) as being unpatentable over Patchett in view of Kobren (U.S. Patent No. 5,953,751).

Patchett discloses the plates may be made out of metal or polymeric resin (page 4, lines 24-32). Patchett also discloses the material of the invention may be produced in many ways to have diverse uses (column 2, lines 7-11). However, Patchett does not disclose the penetration resistant material to be used as a surgical glove. Kobren also discloses a penetration resistant flexible material comprising a web material and a layer of discrete plates (column 1, lines 5-6). Kobren teach the material to be useful as a surgical glove (column 1, lines 44-46). Kobren disclose the plates of the glove can be metal or polymeric resin (column 1, lines 55-56) and be between 0.01 and 0.2 mm thick (column 2, line 63). It would have been obvious to one having ordinary skill in the art to use plates between 0.1 and 0.2 mm thick in the penetration resistant material of

Patchett in order to make the material useful as a glove for preventing needle penetration, as taught by Kobren. With regard to the gap width limitations of from 5 mils to 20 mils, Kobren discloses making the gap widths between 0.01 mm and 0.2 mm (column 2, line 64). Additionally, Patchett teaches that the degree of flexibility is determined by adjusting the separation between adjacent plates (column 2, lines 20-34). It would have been obvious to one having ordinary skill in the art to make the gap width between 5 and 20 mils according to the teachings of Patchett, since it has been held that discovering an optimum value of a result effective variable involves only routine skill in the art. *In re Boesch*, 617 F.2d 272, 205 USPQ 215 (CCPA 1980). With regard to the non-overlapping limitation, Patchett discloses embodiments for overlapping plates and non-overlapping plates (Figures 6A and 6B). With regard to claim 85, Patchett disclose the plate material may be steel (page 4, line 28). It would have been obvious to one having ordinary skill in the art to use stainless steel, since it has been held to be within the general skill of a worker in the art to select a known material on the basis of its suitability for the intended use. *In re Leshin*, 125 USPQ 416. With regard to claim 91, Patchett disclose the plates are bonded to the flexible layer via adhesive (page 4, line 10).

10. Claims 87, 88, and 101-103 are rejected under 35 U.S.C. 103(a) as being unpatentable over Patchett in view of Kobren and further in view of Cunningham (U.S. Patent No. 5,601,895).

Patchett use a modified hexagon shape for the plate (page 3, lines 28-34), but neither Patchett nor Kobren describe the plates to an equilateral hexagon. Cunningham

Art Unit: 1771

discloses that the equilateral hexagon is sufficient for preventing needle penetration into a glove (Figure 6). It would have been obvious to one having ordinary skill in the art to use an equilateral hexagon in the Patchett article in order to be able manufacture the article more expediently without having to cut the jigsaw pattern, since Cunningham shows that the hexagon shape is sufficient.

11. Claim 89 is rejected under 35 U.S.C. 103(a) as being unpatentable over Patchett in view of Kobren and further in view of Nishimura (U.S. Patent No. 5,156,900).

Patchett teach the flexible layer may be woven or nonwoven textile material so long as it is gas permeable (page 5, lines 10-16), but do not teach it to comprise polyurethane and nylon synthetic leather. Nishimura disclose a porous leather material that is made from polyurethane and nylon (column 4, lines 10-46). It would have been obvious to one having ordinary skill in the art to use the porous leather substrate disclosed by Nishimura as the flexible substrate in Patchett, since it has been held to be within the general skill of a worker in the art to select a known material on the basis of its suitability for the intended use.

12. Claim 92 is rejected under 35 U.S.C. 103(a) as being unpatentable over Patchett in view of Kobren and further in view of LeGrand et al. (U.S. Patent No. 4,861,666).

Patchett disclose using adhesive to bond the plates to the substrate, but do not disclose polyurethane adhesive. LeGrand et al. disclose polyurethane as a well-known adhesive suitable in the art of puncture resistant material (column 3, lines 15-19). It would have been obvious to one having ordinary skill in the art to use polyurethane

Art Unit: 1771

adhesive, since it has been held to be within the general skill of a worker in the art to select a known material on the basis of its suitability for the intended use.

13. Claim 112 is rejected under 35 U.S.C. 103(a) as being unpatentable over Harpell.

Harpell does not disclose the gap width to be between 10 and 20 mils. However, the width of the gaps is a result effective variable in making the article. Decreasing the gap width would offer improved ballistic resistance whereas increasing the gap width would increase flexibility. It would have been obvious to one having ordinary skill in the art to use a gap width between plates of between 10 and 20 mils in order to increase ballistic resistance, since it has been held that discovering an optimum value of a result effective variable involves only routine skill in the art.

Allowable Subject Matter

14. Claims 93-99 are allowed.

15. Claims 104 and 105 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Response to Arguments

16. Applicant's arguments with respect to claims 84-99 have been considered but are moot in view of the new ground(s) of rejection.

Art Unit: 1771

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Jeremy R. Pierce whose telephone number is (703) 605-4243. The examiner can normally be reached on Monday-Thursday 7-4:30 and alternate Fridays 7-4.

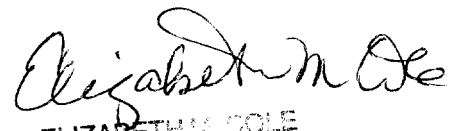
If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Terrel Morris can be reached on (703) 308-2414. The fax phone numbers for the organization where this application or proceeding is assigned are (703) 872-9310 for regular communications and (703) 872-9311 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 308-0661.



Jeremy R. Pierce
Examiner
Art Unit 1771

July 22, 2003


ELIZABETH M. COLE
PRIMARY EXAMINER